impressively the precision and veracity of modern medical science.

"This case, then—this impressive and illustrative case—is that of a man who, when admitted to the Hospital for Epilepsy and Paralysis, presented a group of symptoms which pointed to tumour of the brain—a distressing and hitherto necessarily fatal malady, for the diagnosis or recognition of which we are indebted to bed-side experience and post-mortem examination. But while clinical and pathological observations have supplied us with knowledge which enables us to detect the existence of tumours of the brain, they have not afforded us any clue to the situation of these morbid growths in the brain mass, and it was not until Prof. Ferrier had, by his experiments on animals, demonstrated the localisation of sensory and motor functions in the cerebral hemispheres that the position of any diseased process by which they might be invaded could be definitely determined. By the light of these experiments it is now possible in many instances to map out the seat of certain pathological changes in these hemispheres with as much nicety and certainty as if the skull and its coverings and linings had become transparent, so that the surface of the brain was exposed to direct inspection. And thus in the case to which I am referring, Dr. Hughes Bennett, under whose care the patient was, guided by Ferrier's experiments, skilfully interpreted the palsies and convulsive movements which the man exhibited, and deduced from them that a small tumour was lodged at one particular point in his "dome of thought," and was silently and relentlessly eating its way into surrounding textures. Not more surely do the fidgetings of the electric needle intimate their origin and convey a meaning to the telegraph clerk than did the twitchings of this man's muscles announce to Dr. Hughes Bennett that a tumour of limited dimensions was ensconced at a particular point of a particular fold or convolution of the brain—the ascending frontal convolution on the right side.

"Very brilliant diagnosis this, it may be remarked, and nothing more. A conclusion has been arrived at which, should it prove correct, will gratify professional pride; but as it cannot be confirmed or refuted until the poor patient is no longer interested in the matter, and cannot be made the basis of any active interference, no great advance has been made after all, and vivisection has yielded only some barren knowledge. Until quite recently, criticism of this kind would have been justifiable in a sense, but now it is happily no longer possible, for another series of experiments on living animals, undertaken by Profs. Ferrier and Yeo, have proved that through our power of localising brain lesions we may open a gateway for their removal or relief. The old notion that the brain is an inviolable organ with *noli me tangere* for its motto—a mysterious and secluded oracle of God that simply falls down and dies when its fane is desecrated by intrusion—has been dissipated by these experiments; and we now know that under punctilious antiseptic precautions the brain, in the lower animals at any rate, may be submitted to various operative procedures without risk to life or fear of permanent injury. Emboldened by this knowledge, Dr. Hughes Bennett devised a way of helping his patient whose disease he had diagnosed with such remarkable exactitude, and gave him one chance, if he had the courage to embrace it, of saving his life and recovering his health.

"The patient had the position in which he stood faithfully explained to him. He was told that he laboured under a malady which medicines were powerless to touch, and that if left unassisted he must die in a few months at latest, after prolonged sufferings similar to those which had already brought him to the verge of exhaustion, and which could be only partially alleviated by drugs; but that one outlet of escape, narrow and dangerous, but still an outlet, was open to him in an operation of a formidable nature and never before performed on a human being, under which he might, perhaps, sink and die, but from which he might, perhaps, obtain complete relief. The man, who had faith in his doctor, and no fine-spun scruples about availing himself of the results of vivisectional discoveries, eagerly chose the operation. On the 25th ult. accordingly, Mr. Godlee, surgeon to University College Hospital, in the midst of an earnest and anxious band of medical men, made an opening in the scalp, skull, and brain membranes of this man at the point where Dr. Hughes Bennett had placed his divining finger, the point corresponding with the convolution where he declared the peccant body to be, and where sure enough it was discovered. In the substance of the brain, exactly where Dr. Hughes Bennett had predicted, a tumour, the size of a walnut was found—a tumour which Mr. Godlee removed without difficulty. The man is now convalescent, having never had a bad symptom, and full of gratitude for the relief afforded him. He has been snatched from the grave and from much suffering, and there is a good prospect that he will be restored to a life of comfort and usefulness. In that case he will be a living monument of the value of vivisection. The medical profession will declare with one voice that he owes his life to Ferrier's experiments, without which it would have been impossible to localise his malady or attempt its removal, and that his case opens up new and far-reaching vistas of hopefulness in brain-surgery. Many men and women will henceforth, there is reason to anticipate, be saved from prolonged torture and death by a kind of treatment that has been made practicable by the sacrifice, under anæsthetics, of a few rabbits and monkeys."

NOTES

THE Council of the British Association for the Advancement of Science has requested the following to allow themselves to be nominated as Presidents of Sections for the meeting at Aberdeen, which begins on Wednesday, September 9, 1885:—Section A (Mathematics, &c.), Prof. J. C. Adams; Section B (Chemistry), Prof. Armstrong; Section C (Geology), Prof. Judd; Section D (Biology), Prof. McIntosh; Section E (Geography), General Walker; Section F (Economics), Prof. J. Bryce; Section G (Mechanics), Mr. B. Baker; Section H (Anthropology), Mr. F. Galton.

WE learn with pleasure that M. Mascart was on Monday last elected a Member of the Academie des Sciences, Paris.

THE Berkeley Research Fellowship has been given by Owens College, Manchester, to Mr. G. H. Fowler of Keble College, Oxford. An opportunity is thus given to Mr. Fowler of carrying on his work on the anatomy of the Zoantharian corals.

THE immense economical importance of Government botanic gardens, especially in young colonies, is well shown by the last report of the Curator of the Gardens in Brisbane. Omitting the distribution of ornamental trees, shrubs, &c., to the gardens of public institutions, as well as that of ornamental pot plants, we find that economic plants have been distributed on a very large scale. The demand for these has been unprecedentedly large, and no application is ever refused so far as it can be supplied. About 3000 economic plants were sent out during the year; these consisted chiefly of various kinds of coffee, tea, cocoa (*Theobroma cacao*), cinchona, and vanilla. Grafted Indian mangoes and plants of the Brazilian nut (*Bertholletia excelsa*) have been given to likely growers, and the demand for the latter is so great that application has been made to the universal feeder of these institutions, Kew, for more. Besides acting as a collecting and distributing agency, the Brisbane Gardens do what is perhaps of even more value, viz. ascertain by experiment the conditions under which certain foreign plants will grow best in the colony. The most important trials recently have been with regard to cinchona, which, Mr. Pink shows, may by care in its early stages, be successfully cultivated in Queensland. The hop plant has been tried, and appears a success, 10 cwt. being the produce per acre the first season, while in England under similar circumstances it is only 4 cwt. Sugar is at present the staple of the colony, but no efforts are spared to discover new kinds elsewhere which may be better adapted to the place. 100 tons of various kinds of cane, chiefly from Mauritius, were sent to planters during the year. Economic and valuable timbers also receive much attention, and the gardens have now ready for transplanting 20,000 trees of various kinds, including cedars, olives, silky oak, English oak, English ash, poplars, and chestnuts. The recent experiments have conclusively shown that Queensland can introduce among her staple produce-crops such valuable and remunerative products of the soil as coffee, hops, and cinchona. As an example of the care and labour devoted to the work, it may be mentioned that every method of cultivating the cinchona in Ceylon and South America was tried in the gardens without much success; and finally Mr. Pink was compelled to devise a method of his own, which proved successful.

We regret to announce the death of Dr. Heinrich Bodinus, for many years Director of the Berlin Zoological Gardens; he died at Berlin on November 23 last. Also of Dr. Karl von Vierordt, formerly Professor of Physiology at Tübingen University; he died at that place on November 22, aged sixty-seven.

La Nature records the death of M. Henri Lortigue, to whom is due the practical introduction of the telephone in most of the large towns in France, and who was in many other respects a man of scientific note. In 1855 he was employed by Leverrier, the Director of the Paris Observatory, who was then organising a series of meteorological observations, to superintend the instruments by which, by means of photography and electricity, the slightest variations of the barometer, thermometer, and compass were recorded. In 1859 M. Lortigue took charge of the telegraph service on the Chemin de Fer du Nord, and received a gold medal for his various inventions of semaphores, automatic whistles, &c. In 1880 he was Director of the Société des Téléphones. He was also a botanist and entomologist of note, and has left behind him some excellent collections in natural history.

The part of Turkestan bordering on China and comprising the countries retroceded by Russia, is now entirely incorporated with the Chinese Empire, and will form henceforward the 19th Province.

We have received from Messrs. Collins of Glasgow the new edition (twentieth thousand) of Prof. Guthrie's well-known "Text-Book of Magnetism and Electricity." Not only has the present edition been carefully revised, but it contains a supplementary chapter by Mr. C. V. Boys, referring chiefly to the practical applications which have been made of electricity during the last few years, such as the telephone and microphone, dynamo machines, electric light, secondary batteries, &c. Electric and magnetic units are also referred to at some length.

Our readers will be glad to know that the Fine Art Society announces the publication of an etching of Prof. T. H. Huxley, after the picture painted by Mr. John Collier, which was exhibited at the Royal Academy in 1883. The etching is the work of the distinguished etcher, M. Léopold Flameng, and corresponds in size with the portrait of the late Mr. Charles Darwin, painted and etched by the same artists, and published by the same Society last year.

An examination of a series of water-marks set in 1750 all round the Swedish coasts, from the mouth of the Tornea to the Naze, in order to settle a dispute between the Swedish astronomer Celsius and some Germans, as to whether the level of the Baltic has been rising or sinking, shows that both parties were right. The gauges were renewed in 1851, and again this year, and have been inspected regularly at short intervals, the observations being carefully recorded. It appears that the Swedish coast has been steadily rising, while that on the southern fringe of the Baltic has been as steadily falling. The dividing line, along which no change is perceptible, passes from Sweden to the Schleswig-Holstein coast, over Bornholm and Laland. The results have lately been published by the Swedish Academy of Sciences; and it appears from them that while during this period of 134 years the northern part of Sweden has risen about 7 feet, the rate of elevation gradually declines as we go southwards, being only about 1 foot at the Naze, and nothing at Bornholm, which remains at the same level as in the middle of the last century. The general average result would be that the Swedish coast has risen about 56 inches during the last 134 years.

The Central Geodynamic Observatory at Rome recently received notice from Corleone, in the province of Palermo, of another violent shock of earthquake, making the fourth in Italy in less than a fortnight. The first occurred on November 23, at 7.30 p.m., on the eastern slope of the Western Alps, and coincided with the reawakening of Vesuvius. The second, at midnight on the 27th, extended from the same region to Switzerland and Lyms on the north, and to the Liguarian coast of Italy. The third, at midnight on the 29th, shook Cosenza and Paola in Calabria. The fourth touched Sicily at Corleone at four o'clock in the afternoon of the 5th inst. During this period an unusual agitation had been noted in the seismographic instruments at Rome and elsewhere in Italy. Prof. Di Rossi, Director of the Geodynamic Observatory, announces the early publication of very interesting observations taken at Rocca di Papa, comprising the alterations in level, and in the temperature of subterranean waters.

A notice has just been received from M. Hepites, who has long been carrying on meteorological observations in Roumania, to the effect that the Roumanian Government has decided on the establishment of a meteorological organisation, and has voted the necessary funds. The Central Institute is being built at Bucharest. The organisation was started July 1. M. Hepites is the director.

In a paper recently read before the Shanghai branch of the Royal Asiatic Society, Dr. Macgowan affirms the claims of the Chinese to be the originators of gunpowder and firearms. This claim was examined in an elaborate paper some years ago by the late Mr. Mayers, and decided by him in the negative. Dr. Macgowan admits that gunpowder as now used is a European discovery. Anterior to its granulation by Schwartz it was a crude compound, of little use in propelling missiles; this, says the writer, is the article first used in China. The incendiary materials stated by a Greek historian to have been employed by the Hindus against Alexander's army, are stated to have been merely the naphthous or petroleum mixtures of the ancient Coreans, and in early times used by the Chinese. The "stink-pots," so much used by Chinese pirates, is, it appears, a Cambodian invention. Dr. Macgowan states also that as early as the twelfth or thirteenth century the Chinese attempted submarine warfare, contriving rude torpedoes for that purpose. In the year 1000 an inventor exhibited to the then Emperor of China "a fire-gun and a fire-bomb." He says that while the Chinese discovered the explosive nature of nitre, sulphur, and charcoal in combination, they were laggards in its application, from inability to perfect its manufacture, so, in the use of firearms, failing to prosecute experiment, they are found behind in the matter of scientific gunnery.

In *The Hull Quarterly and East Riding Portfolio*, edited by W. G. B. Page, Sub-Librarian of Subscription Library, Hull, will appear, during the year 1885, interesting articles by T. M. Evans, President of the Literary and Philosophical Society, Hull, on the ancient Britons and the lake-dwelling at Ulrome in Holderness; A. C. Hurtzig, C.E., on some tidal and engineering features of the River Humber; and William Lawton, on the meteorology of Hull.

The Leicester "Literary and Philosophical," now entering upon its jubilee year, appears to be a flourishing society in a flourishing town. Over 300 members distribute themselves into five sections, containing many ladies as Associates, and both making outdoor excursions for practical observation, and holding evening meetings at which lectures are given, professional as well as amateur, followed at the latter by discussions. These lead to the collection and distribution of valuable knowledge of archæology, literature, and economics; of astronomy, physics, and chemistry; of geology, where the exposures made by local railway cuttings are carefully studied and recorded; of biology (combining botany and zoology); and of zoology, specially directed to the study of the animals of the county, a list of which will be published as it approaches completeness. Some of these productions are not among the abstracts at the end of the Report, being reserved for publication in "another place." These papers are read in a new lecture-hall adjoining the Museum, another institution which, though not very extensive, is in a most active state of growth and improvement. A new curator has led to a thorough rearrangement of the zoological collection in such cases and surroundings as show the specimens in their natural habitats, with index sketches attached to each case, supplying names, &c., hanging near. So large an outlay has been made upon these cases, that only 4 per cent. of the expenditure has been devoted to fresh objects. A large increase in the number of visitors has followed these reforms, and nothing, we venture to say, would so increase the attendance at a museum as the introduction of variation instead of rigid order, and the contributions from South Kensington can best assist in this "movement." It seems hardly possible than an institution like this should be frequented by persons engaged in business when the hours of opening it are only the middle hours of the business day, viz. from ten till four, and the fact that on a holiday like Whitsun Monday 97 persons per hour were admitted during the daytime, and 353 persons per hour were admitted in the evening, shows that, here at any rate, the latter hours are the favourite hours also. Why, on the same ground, should a series of "popular" lecturettes be given at three o'clock in the afternoon?

DR. A. PENCK has recently studied the old glaciers of the Pyrenees in detail, and has found remarkable differences between them and the Alpine glaciers of the Ice period. Even at that remote period the Pyrenean glaciers were of far smaller extent than those of the Alps—in the western part of the Pyrenees indeed there existed not a single one. Wherever traces of glaciers could be found they were accompanied by lake beds; these have by now been filled up for the greatest part, at least in the lower altitudes, the only lakes still existing being situated in altitudes of between 1500 and 3000 metres.

WE have received a pamphlet on the climatic conditions of Luxor and Egypt, with especial reference to invalids, by Dr. Maclean (H. K. Lewis). The author spent three years as an invalid and also in the practice of his profession in Egypt. There are several meteorological tables and diagrams, and very much information of all kinds for the traveller, although the traveller who wants to escape the English winter is the special object of the writer's solicitude.

PROF. LINDSTRÖM, the keeper of the palæontological collections at the Stockholm Museum, has made an interesting discovery amongst a number of petrefacts obtained from the Island of Gothland. It is an air-breathing crustacean from the Silurian period, the first specimen of the kind yet found.

PROF. GUSTAV VON HAYEK, the author of the well-known "Atlas of Natural History" (published by Perles of Vienna), has received the gold medal for arts and sciences from the Emperor of Austria, in recognition of the excellence of the work referred to.

WE learn from *Science* that Commander Bartlett's annual report on the operations of the U.S. Hydrographic Office makes a good showing for activity and enterprise. Lists of light-houses and "Notices to Mariners," in which bearings are given in degrees from true north, instead of magnetic bearings in points, as formerly, have been liberally published; the official correspondence with other hydrographic offices has been increased; and a complete set of the charts issued by all nations is kept on file, and is always at the service of the public for the determination of any questions relating to hydrography. The only vessel engaged in making surveys during the year was the *Ranger*, on the west coast of Mexico and Central America; but it is strongly recommended that new surveys be undertaken in several regions where they have long been wanted. The charts of the northern coast of South America are mostly based on old Spanish surveys dating back to 1794. "Watson's Rock," latitude 40° 17′ N., longitude 53° 22′ W., in the path of North Atlantic traders, has been reported so many times that its existence ought to be definitely settled or unsettled. The recommendation of previous hydrographers with regard to surveys of the Caroline and Marshall Islands, in the equatorial Pacific, should no longer be neglected; they lie in the belt of the trade-winds and westerly current, the natural highway of vessels crossing the ocean to Japan, China, and the East Indies, and require immediate examination. In the North Pacific alone there are over 3000 reported dangers that need decisive observation. In many cases the same island has half a dozen different positions, with as much as fifty miles between the extremes. It is urged that every naval vessel be provided with modern sounding-apparatus, by which even deep-sea measures can be quickly made, and required to sound wherever the charts show no depths reported within twenty miles on any side; and it is desired that a ship should be fitted out expressly to make investigations into ocean temperatures at all depths, and thus obtain data necessary to complete the determination of the actual oceanic circulation.

M. GUINET, a rich burgher of Lyons, having spent some years of his life and 200,000*l.* of his money in the erection and furnishing of a museum, recently opened in his native town, intended to illustrate the religions of the East, has further applied to have the establishment transferred to Paris, where it would be likely to interest and instruct a larger number of visitors. He has, in addition, offered to consign the whole into the hands of the Government under certain conditions, an offer which has been accepted. A number of priests belonging to the Buddhist and Brahmanic religions are to be brought to Paris, and at fixed salaries employed in translating historical and liturgical books connected with their respective faiths.

THE French Government have bestowed fresh honours on the officers of the Meudon steering balloon, one of them having had his name put down on the list for the distinction of a "Chef de Bataillon," while another has been made a knight of the "Légion d'Honneur," and a third, who was wounded in preparing the hydrogen gas, has had the same distinction awarded him. At the same time that we observe the services of these gallant officers so well appreciated, we learn that the steering balloon has been dismantled without undergoing any new experiments, nor do we hear that the Commission appointed by the Academy of Sciences to report on the balloon has published any verdict respecting it.

THE Municipal Council of Paris having been called on to vote on the question of a site for the Centennial Exhibition of 1889, have selected the Champ de Mars, the ground on which former exhibitions were held. This unexpected vote on a matter to which in the circumstances of the case great importance was attached has caused a considerable amount of sensation.

"CELSUS and his Works" was the subject of the first of a course of lectures during the current session, delivered at the Faculty of Medicine in Paris, by M. Laboulbène. The course is to be devoted to a history of the principal discoveries in medicine and surgery, and the lectures are to appear in the *Revue Scientifique*.

A COMMISSION has been appointed by M. Cochery to determine the conditions of security requisite for laying electric cables to transmit currents of high tension. This step has been taken in connection with the experiments conducted at Creil and the Gare du Nord with the Marcel-Deprez system, as well as others which may be in preparation.

THE observer at the meteorological station on the summit of the Obir (Carinthia) reports that on October 11, at 8.15 p.m., he saw a beautiful display of St. Elmo's fire. The points of the vanes, the telephone wires, and the tops of the posts supporting this wire shone brilliantly in a whitish-blue light.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus* ♀), a Macaque Monkey (*Macacus cynomolgus* ♂) from India, presented by Mr. John Roberts; a Bonnet Monkey (*Macacus sinicus* ♂) from India, presented by Mr. David McCance; a Montagu's Harrier (*Circus cinerascens*), European, presented by Lord Lilford, F.Z.S.; a Banded Gymnogene (*Polyboroïdes typicus*) from West Africa, a Gold Pheasant (*Thaumalea picta* ♂) from China, an Indian Python (*Python molurus*) from India, deposited; three Lions (*Felis leo*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE BINARY STAR *α* CENTAURI.—In the last number of the *Monthly Notices* of the Royal Astronomical Society, Mr. E. B. Powell, so favourably known for his excellent measures of double-stars, made during his residence in India, has a note in which he gives reasons for concluding that the period of revolution of this most interesting binary is longer than has been assigned by the later calculations of its orbit, and, instead of a period of 77½ years, which is about that found by Dr. Elkin, he considers that one of 86 or 87 years is better supported by the earlier observations, viz. those by Richaud at Pondicherry in December, 1689, and by Feuillée at Lima on July 4, 1709. The results of an investigation by Dr. Doberck, communicated to the writer early in 1879, rather tend to support Mr. Powell's conclusion. Dr. Doberck's elements, which are professedly only provisional ones, are as follow:—

Periastron passage	1875·12
Node	25° 32′
Angle between the lines of nodes and apsides ...	45 58
Inclination	79 24
Excentricity	0·5332
Semi-axis major	18″·45
Period of revolution	88·536 years.

In this orbit the angle and distance at the epochs of the observations of Richaud and Feuillée would be:—

1689·95 ...	Position, 14°·9 ...	Distance, 9″·54
1709·51 ...	,, 200·8 ...	,, 14·74

ENCKE'S COMET.—The elements of this comet for the approaching perihelion passage are as follow, according to the calculations of Dr. O. Backlund of Pulkowa:—

Perihelion passage 1885, March 7·6523 G.M.T.

Longitude of perihelion	158° 32′ 45″·0	Mean Equinox 1885·0
,, ascending node ...	334 36 54·6	
Inclination	12 54 0·1	
Angle of excentricity	57 45 20·5	
Mean daily sidereal motion ...	1072″·97311	

The corresponding period of revolution is 1207·86 days. An ephemeris for January will appear next week.

BARNARD'S COMET.—Prof. Frisby of Washington has calculated elliptical elements of this comet from observations made at the Naval Observatory between August 12 and October 20, and therefore extending over sixty-nine days. The period of revolution in his orbit is 1878·65 days, or 5·143 years, but this element does not appear to be as yet very closely determined, much less so indeed than in the case of the second new comet of short period detected during the present year by Wolf. In Prof. Frisby's orbit the distance of the comet at aphelion from the orbit of Jupiter would be 0·705, the aphelion distance being 4·683, therefore considerably within the orbit of the planet; at the ascending node the comet's distance from the sun would be 1·552, and at the opposite node 3·942. Taking these conditions into account, it would appear probable that it has been long moving in its actual orbit. The comet, however, belongs most likely to the fainter class of those revolving in short periods, and in the present year has been observed under somewhat favourable circumstances: it approaches nearest to the earth when the perihelion passage takes place between a fortnight and three weeks earlier than in 1884. On November 20, M. Perrotin observing with the Gauthier-Eichens equatorial of the Observatory of Nice, aperture 0·38 m., found the comet near the limit of vision for that instrument; he remarks:—"Pour la rendre sensible à l'œil et bien saisir sa position exacte, on était obligé d'agiter legèrement la lunette en ascension droite, tantôt dans un sens, tantôt dans l'autre." The position determined for that evening was as follows:—

Nov. 20 at 7h. 25m. 38s. Nice M.T. R.A. 22h. 38m. 21·85s.,
N.P.D. 97° 18′ 20″·4.

The Observatory of Nice (Mont-Gros), established through the munificence of M. Bischoffsheim of Paris, is in longitude 0h. 29m. 12·2s. east of Greenwich, and in latitude 43° 43′ 16″·7.

GEOGRAPHICAL NOTES

THE correspondent of the *Times* with the Afghan Boundary Commission, writing from Khwaja Ali on October 16, describes the march of the expedition from Quetta to the Helmand. The geologist, Mr. Griesbach, describes the geological features of the country as much the same as those seen in the Pishin and Candahar country, viz. steep, deeply-eroded mountain ranges with a general strike of north, south to north-east, south-west, the intervening valleys being filled by Post-Tertiary deposits, which form extensive plains and glacis. The ranges of hills are more or less continuations of ranges, which are crossed by the Quetta-Candahar road. After leaving Kanak, one crosses the south-western end of the Ghaziaband range, which is composed of sandstone, shales, and grits of the "flysch" facies of the Eocene rocks. Beyond that range one enters the southern extension of the Lora plain of the Pishin. The white and coloured clays of the Siwaliks, seen from Dina Karez in the Pishin, are again seen (afar off) from Panjpai, and no doubt they underlie most of the Post-Tertiary deposits which form the surface of these wide valleys). The low ridges between Panjpai and Nushki are composed of sandstones, flaggy limestone beds, and friable shale, identical with the "Soliman" sandstone, and entirely belonging to the Lower Cretaceous series. The contact between the hippuritic limestone and the trap contains in the Candahar district gold (with traces of nickel) and galena ores. The water found below the surface is the natural drainage from the hills, contained in the gravels and sands of the Post-Tertiary fan deposits, inclosed between the clays of the Siwaliks below, and the recent conglomerate (a kind of kankar) above.

DR. CHAVANNE, who visited the Congo by order of the Brussels Geographical Society, has returned to Lisbon for a short period in order to recruit his health, which has suffered by the tropical climate.—Herr Flegel, who was preparing for a new expedition into the Benué districts, is also detained in Europe by ill health.—The Russian traveller, M. Piasecki, well known through his travels in China in 1874, is about to start on another exploring expedition to that country under the patronage of the Emperor of Russia and the Grand Duke Wladimir.

IN a recent number of the *Revue Scientifique* there is a long article by M. L. Simonin, on the geography of China. The area of the whole Empire of China is estimated at 11,574,356 square kilometres, *i.e.* the largest empire in the world next to that of Russia, which is 21,702, 230 square kilometres. China proper, however, is only 4,024, 690 square kilometres, *i.e.* two-fifths of Europe, seven times the size of France, and fifteen times that of Great Britain. With regard to the population of China it is not possible to give precise and absolutely trustworthy numbers, there being no proper official census in force in the Empire. The statistician of the Imperial Chinese Customs sets down the actual population of China at 250,000,000. A census drawn up in 1882 for fiscal purposes, and cited by the United States Minister in China, gives 255,000,000 as the number of the population. In the lower basin of the Yang-tse-Kiang as